

SEQUENCE LISTING

<110> KIKUCHI, YASUFUMI
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KINOSHITA, YASUKO
IIJIMA, SHIGEYUKI
FUKUSHIMA, NAOISHI
TSUCHIYA, MASAYUKI

<120> HUMANIZED ANTI-CD47 ANTIBODY

<130> 060641-0113

<140> 10/578,840
<141> 2006-05-10

<150> PCT/JP04/016744
<151> 2004-11-11

<150> JP 2003-381406
<151> 2003-11-11

<160> 121

<170> PatentIn Ver. 3.3

<210> 1
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 1
cccaagcttc caccatggaa tggagctgga tatttctttt cctcctgtca ggaactgcag 60
gtgtccactc ccagggtgcag ctgggtcagt ctggggctga ggtgaagaag cctggggcct 120
cagtgaagg ttc 133

<210> 2
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<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 2
ggcttgatgt gatggatat atttatcattt acaatgtatgg tactaagtat aatgagaagt 60
tcaaggacag agtcacgtg acccggtaca cgtccacgag cacagtctac atggagttga 120
gcagtctcag atc 133

<210> 3
<211> 133
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

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tgtaaggata aatatatccc atccactcaa gcccttgc 60.
gaataacatg gttggcgaag gtgtatccag atgccttaca ggaaaccttc actgaggccc 120
caggcttctt cac 133

<210> 4
<211> 133
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 4
cgcggatcca ctcacctgag gagacggta ccagggttcc ttggccccag tcgtcgtaag 60
tatagtaacc ccctcttagca caataataga cggccgtgtc ctcagatctg agactgctca 120
actccatgta gac 133

<210> 5
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 5
cccaagcttc caccatggaa tgg 23

<210> 6
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 6
cgcggatcca ctcacctgag gag 23

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<210> 7
<211> 424
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      plasmid

<220>
<221> CDS
<222> (1)..(408)

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Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
   1           5           10          15

gtc cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
   20          25          30

cct ggg gcc tca gtg aag gtt tcc tgt aag gca tct gga tac acc ttc 144
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
   35          40          45

gcc aac cat gtt att cac tgg gtg cga cag gcc cct gga caa ggg ctt 192
Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
   50          55          60

gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat 240
Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
   65          70          75          80

gag aag ttc aag gac aga gtc acg atg acc cgg gac acg tcc acg agc 288
Glu Lys Phe Lys Asp Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser
   85          90          95

aca gtc tac atg gag ttg agc agt ctc aga tct gag gac acg gcc gtc 336
Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
   100         105         110

tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa 384
Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
   115         120         125

gga acc ctg gtc acc gtc tcc tca ggtgagtgga tcccgcg
Gly Thr Leu Val Thr Val Ser Ser
   130         135

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<210> 8
<211> 40
<212> DNA
<213> Artificial Sequence
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<220>
 <223> Description of Artificial Sequence: Synthetic
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<400> 8
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<210> 9
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 9
 ggtcatcgta actctgtc 18

<210> 10
 <211> 424
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<220>
 <221> CDS
 <222> (1)..(408)

<400> 10
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 Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15

gtc cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
 Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

cct ggg gcc tca gtg aag gtt tcc tgt aag gca tct gga tac acc ttc 144
 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

gcc aac cat gtt att cac tgg gtg cga cag gcc cct gga caa ggg ctt 192
 Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat 240
 Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

gag aag ttc aag gac aga gtc acg atg acc tca gac acg tcc acg agc 288
 Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Thr Ser
 85 90 95

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aca gtc tac atg gag ttg agc agt ctc aga tct gag gac acg gcc gtc 336
Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
          100           105           110

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tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa 384
 Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

gga acc ctg gtc acc gtc tcc tca ggtgagtgga tccgcg 424
Gly Thr Leu Val Thr Val Ser Ser
130 135

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<210> 11
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
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<400> 11
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<210> 12
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide
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<400> 12
gaagggttat ccagatgc 18

<210> 13
<211> 424
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
plasmid

<220>
<221> CDS
<222> (1)..(408)

atg gaa tgg agc tgg ata ttt ctc ttc ctc ctg tca gga act gca ggt 48
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1 5 10 15

gtc cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag	96
Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys	
20 25 30	
cct ggg gcc tca gtg aag gtt tcc tgt aag gca tct gga tac acc ttc	144
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe	
35 40 45	
acc aac cat gtt att cac tgg gtg cga cag gcc cct gga caa ggg ctt	192
Thr Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu	
50 55 60	
gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat	240
Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn	
65 70 75 80	
gag aag ttc aag gac aga gtc acg atg acc tca gac acg tcc acg agc	288
Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Thr Ser	
85 90 95	
aca gtc tac atg gag ttg agc agt ctc aga tct gag gac acg gcc gtc	336
Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val	
100 105 110	
tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa	384
Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Asp Asp Trp Gly Gln	
115 120 125	
gga acc ctg gtc acc gtc tcc tca ggtgagtggaa tccgcg	424
Gly Thr Leu Val Thr Val Ser Ser	
130 135	

<210> 14
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 14
aatgagaagt tcaaggacaa agtcacgatg acctcagac 39

<210> 15
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 15
 gtccttgaac ttctcatt 18

<210> 16
 <211> 424
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<220>
 <221> CDS
 <222> (1)...(408)

<400> 16 48
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 Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15

gtc cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
 Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

cct ggg gcc tca gtg aag gtt tcc tgt aag gca tct gga tac acc ttc 144
 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

gcc aac cat gtt att cac tgg gtg cga cag gcc cct gga caa ggg ctt 192
 Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat 240
 Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

gag aag ttc aag gac aaa gtc acg atg acc tca gac acg tcc acg agc 288
 Glu Lys Phe Lys Asp Lys Val Thr Met Thr Ser Asp Thr Ser Thr Ser
 85 90 95

aca gtc tac atg gag ttg agc agt ctc aga tct gag gac acg gcc gtc 336
 Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
 100 105 110

tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa 384
 Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Asp Asp Trp Gly Gln
 115 120 125

gga acc ctg gtc acc gtc tcc tca ggtgagtgg a tccgcg 424
 Gly Thr Leu Val Thr Val Ser Ser
 130 135

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<210> 17
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 17
ttcaaggaca gagtcacgct gacctcagac acgtccacg          39

<210> 18
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 18
cgtgactctg tccttgaa          18

<210> 19
<211> 424
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      plasmid

<220>
<221> CDS
<222> (1)..(408)

<400> 19
atg gaa tgg agc tgg ata ttt ctc ttc ctc ctg tca gga act gca ggt    48
Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
      1           5           10          15

gtc cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag    96
Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
      20          25          30

cct ggg gcc tca gtg aag gtt tcc tgt aag gca tct gga tac acc ttc    144
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
      35          40          45

gcc aac cat gtt att cac tgg gtg cga cag gcc cct gga caa ggg ctt    192
Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
      50          55          60

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gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat 240
 Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

gag aag ttc aag gac aga gtc acg ctg acc tca gac acg tcc acg agc 288
 Glu Lys Phe Lys Asp Arg Val Thr Leu Thr Ser Asp Thr Ser Thr Ser
 85 90 95

aca gtc tac atg gag ttg agc agt ctc aga tct gag gac acg gcc gtc 336
 Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
 100 105 110

tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa 384
 Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

gga acc ctg gtc acc gtc tcc tca ggtgagtggaa tcccgcg 424
 Gly Thr Leu Val Thr Val Ser Ser
 130 135

<210> 20

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 20

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39

<210> 21

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 21

cgtcagatct gagactgctc

20

<210> 22

<211> 424

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
plasmid

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<220>

<221> CDS

<222> (1)..(408)

<400> 22

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Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
1 5 10 15

gtc cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
20 25 30

cct ggg gcc tca gtg aag gtt tcc tgt aag gca tct gga tac acc ttc 144
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
35 40 45

acc aac cat gtt att cac tgg gtg cga cag gcc cct gga caa ggg ctt 192
Thr Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
50 55 60

gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat 240
Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
65 70 75 80

gag aag ttc aag gac aga gtc acg atg acc tca gac acg tcc acg agc 288
Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Thr Ser
85 90 95

aca gtc tac atg gag ttg agc agt ctc aga tct gac gac acg gcc gtc 336
Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
100 105 110

tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa 384
Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
115 120 125

gga acc ctg gtc acc gtc tcc tca ggtgagtggg tccgcg 424
Gly Thr Leu Val Thr Val Ser Ser
130 135

<210> 23

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 23

gaaggcctggg gcctcagtgc aggtttcctg taagg 35

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<210> 24
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 24
aaccatgtta ttcactggct gcgacaggcc cctggacaa                                39

<210> 25
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 25
gatgacctca gacacgtcca tcagcacagc ctacatggag ttg                                43

<210> 26
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 26
cactgaggcc ccaggcttc                                19

<210> 27
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 27
ccagtgaata acatggtt                                18

<210> 28
<211> 49
<212> DNA
<213> Artificial Sequence

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<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 28
 cgcggatcca ctcacctgag gagacggta ccagggttgc ttggccca 49

<210> 29
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 29
 ggacgtgtct gaggtcatcg 20

<210> 30
 <211> 424
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<220>
 <221> CDS
 <222> (1)...(408)

<400> 30
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 Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15

gtc cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
 Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

cct ggg gcc tca gtg cag gtt tcc tgt aag gca tct gga tac acc ttc 144
 Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

acc aac cat gtt att cac tgg ctg cga cag gcc cct gga caa ggg ctt 192
 Thr Asn His Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat 240
 Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

gag aag ttc aag gac aga gtc acg atg acc tca gac acg tcc atc agc 288
 Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
 85 90 95

aca gcc tac atg gag ttg agc agt ctc aga tct gac gac acg gcc gtc	336
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val	
100	105
	110
tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa	384
Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln	
115	120
	125
gca acc ctg gtc acc gtc tcc tca ggtgagtgga tcccgcg	424
Ala Thr Leu Val Thr Val Ser Ser	
130	135

<210> 31	
<211> 130	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: Synthetic	
oligonucleotide	
<400> 31	
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caggctccag tggggatgtt gtgatgactc agtctccact ctccctgccc gtcacccttg 120	
gacagccggc	130
<210> 32	
<211> 130	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: Synthetic	
oligonucleotide	
<400> 32	
cagcagaggc caggccaatc tccaaggcgc ctaattata aagttccaa ccgattttct 60	
ggtgtcccaag acagattcaag cggcagtggg tcaggcactg atttcacact gaaaatcagc 120	
agggtggagg	130
<210> 33	
<211> 130	
<212> DNA	
<213> Artificial Sequence	
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<223> Description of Artificial Sequence: Synthetic	
oligonucleotide	
<400> 33	
ggcgcttgg agattggcct ggccctctgct gaaaccaatg taaataggc tttccattac 60	
tgtgcacaag gctctgactt gatctgcagg agatggaggc cggctgtcca agggtgacgg 120	
gcagggagag	130

<210> 34
<211> 130
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 34
cgccggatcca ctcacgtttg atctccagct tggtccccctg gccaaacgtg tacggaacat 60
gtgtactttg agagcagtaa taaactccaa catcctcagc ctccaccctg ctgattttca 120
gtgtgaaatc 130

<210> 35
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 35
cccaagcttc caccatgagg ctc 23

<210> 36
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 36
cgccggatcca ctcacgtttg atc 23

<210> 37
<211> 412
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic plasmid

<220>
<221> CDS
<222> (1)..(396)

<400> 37
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Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
1 5 10 15

ggc tcc agt ggg gat gtt gtg atg act cag tct cca ctc tcc ctg ccc 96
Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
20 25 30

gtc acc ctt gga cag ccg gcc tcc atc tcc tgc aga tca agt cag agc 144
Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
35 40 45

ctt gtg cac agt aat gga aag acc tat tta cat tgg ttt cag cag agg 192
Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Phe Gln Gln Arg
50 55 60

cca ggc caa tct cca agg cgc cta att tat aaa gtt tcc aac cga ttt 240
Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Phe
65 70 75 80

tct ggt gtc cca gac aga ttc agc ggc agt ggg tca ggc act gat ttc 288
Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
85 90 95

aca ctg aaa atc agc agg gtg gag gct gag gat gtt gga gtt tat tac 336
Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
100 105 110

tgc tct caa agt aca cat gtt ccg tac acg ttt ggc cag ggg acc aag 384
Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
115 120 125

ctg gag atc aaa cgtgagtgaa tccgcg 412
Leu Glu Ile Lys
130

<210> 38
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 38
ccaggccaat ctccaaggct cctaatttat aaagttcc 39

<210> 39
<211> 18
<212> DNA
<213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 39
ccttggagat tggcctgg

<210> 40
<211> 412
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      plasmid

<220>
<221> CDS
<222> (1)..(396)

<400> 40
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Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
   1           5           10          15
ggc tcc agt ggg gat gtt gtg atg act cag tct cca ctc tcc ctg ccc      96
Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
   20          25          30
gtc acc ctt gga cag ccg gcc tcc atc tcc tgc aga tca agt cag agc      144
Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
   35          40          45
ctt gtg cac agt aat gga aag acc tat tta cat tgg ttt cag cag agg      192
Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Phe Gln Gln Arg
   50          55          60
cca ggc caa tct cca agg ctc cta att tat aaa gtt tcc aac cga ttt      240
Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe
   65          70          75          80
tct ggt gtc cca gac aga ttc acg ggc agt ggg tca ggc act gat ttc      288
Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Thr Asp Phe
   85          90          95
aca ctg aaa atc acg agg gtg gag gct gag gat gtt gga gtt tat tac      336
Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
   100         105         110
tgc tct caa agt aca cat gtt ccg tac acg ttt ggc cag ggg acc aag      384
Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
   115         120         125
ctg gag atc aaa cgtgagtgg a tcccgcg
Leu Glu Ile Lys
   130

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<210> 41
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 41
gaggatgttg gagtttattt ctgctctcaa agtacacat                                39

<210> 42
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 42
ataaaactcca acatcctc                                18

<210> 43
<211> 412
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      plasmid

<220>
<221> CDS
<222> (1)..(396)

<400> 43
atg agg ctc cct gct cag ctc ctg ggg ctg cta atg ctc tgg gtc cca      48
Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
      1           5           10          15

ggc tcc agt ggg gat gtt gtg atg act cag tct cca ctc tcc ctg ccc      96
Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
      20          25          30

gtc acc ctt gga cag ccg gcc tcc atc tcc tgc aga tca agt cag agc      144
Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
      35          40          45

ctt gtg cac agt aat gga aag acc tat tta cat tgg ttt cag cag agg      192
Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Phe Gln Gln Arg
      50          55          60

```

cca ggc caa tct cca agg cgc cta att tat aaa gtt tcc aac cga ttt	240
Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Phe	
65 70 75 80	
tct ggt gtc cca gac aga ttc agc ggc agt ggg tca ggc act gat ttc	288
Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe	
85 90 95	
aca ctg aaa atc agc agg gtg gag gct gag gat gtt gga gtt tat ttc	336
Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Phe	
100 105 110	
tgc tct caa agt aca cat gtt ccg tac acg ttt ggc cag ggg acc aag	384
Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys	
115 120 125	
ctg gag atc aaa cgtgagtgg a tcccgcg	412
Leu Glu Ile Lys	
130	

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<210> 44
<211> 39
<212> DNA
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 44
aaqaccatt tacatggta ccagcagagg ccagggcaa

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<210> 45
<211> 20
<212> DNA
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 45
ccaatgtaaa taggtcttcc 20

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<210> 46
<211> 412
<212> DNA
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Synthetic
plasmid

<220>

<221> CDS

<222> (1)...(396)

<400> 46

atg	agg	ctc	cct	gct	cag	ctc	ctg	ggg	ctg	cta	atg	ctc	tgg	gtc	cca	48
Met	Arg	Leu	Pro	Ala	Gln	Leu	Leu	Gly	Leu	Leu	Met	Leu	Trp	Val	Pro	
1						5				10					15	

ggc	tcc	agt	ggg	gat	gtt	gtg	atg	act	cag	tct	cca	ctc	tcc	ctg	ccc	96
Gly	Ser	Ser	Gly	Asp	Val	Val	Met	Thr	Gln	Ser	Pro	Leu	Ser	Leu	Pro	
20							25						30			

gtc	acc	ctt	gga	cag	ccg	gcc	tcc	atc	tcc	tgc	aga	tca	agt	cag	agc	144
Val	Thr	Leu	Gly	Gln	Pro	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser	Gln	Ser	
35							40			45						

ctt	gtg	cac	agt	aat	gga	aag	acc	tat	tta	cat	tgg	tac	cag	cag	agg	192
Leu	Val	His	Ser	Asn	Gly	Lys	Thr	Tyr	Leu	His	Trp	Tyr	Gln	Gln	Arg	
50							55			60						

cca	ggc	caa	tct	cca	agg	cgc	cta	att	tat	aaa	gtt	tcc	aac	cga	ttt	240
Pro	Gly	Gln	Ser	Pro	Arg	Arg	Leu	Ile	Tyr	Lys	Val	Ser	Asn	Arg	Phe	
65							70			75			80			

tct	ggt	gtc	cca	gac	aga	ttc	agc	ggc	agt	ggg	tca	ggc	act	gat	ttc	288
Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	
85							90			95						

aca	ctg	aaa	atc	agc	agg	gtg	gag	gct	gag	gat	gtt	gga	gtt	tat	tac	336
Thr	Leu	Lys	Ile	Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Val	Tyr	Tyr	
100							105					110				

tgc	tct	caa	agt	aca	cat	gtt	ccg	tac	acg	ttt	ggc	cag	ggg	acc	aag	384
Cys	Ser	Gln	Ser	Thr	His	Val	Pro	Tyr	Thr	Phe	Gly	Gln	Gly	Thr	Lys	
115							120					125				

ctg	gag	atc	aaa	cgtgagtgaa	tccgcg	412
Leu	Glu	Ile	Lys			
130						

<210> 47

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 47

cctatttaca ttggttctg cagaggccag gccaatctc

39

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<210> 48
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 48
      gaaaccaatg taaataggc          20

<210> 49
<211> 412
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      plasmid

<220>
<221> CDS
<222> (1)..(396)

<400> 49
      atg agg ctc cct gct cag ctc ctg ggg ctg cta atg ctc tgg gtc cca      48
      Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
      1           5                   10                  15

      ggc tcc agt ggg gat gtt gtg atg act cag tct cca ctc tcc ctg ccc      96
      Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
      20          25                   30

      gtc acc ctt gga cag ccg gcc tcc atc tcc tgc aga tca agt cag agc      144
      Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
      35          40                   45

      ctt gtg cac agt aat gga aag acc tat tta cat tgg ttt ctg cag agg      192
      Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Phe Leu Gln Arg
      50          55                   60

      cca ggc caa tct cca agg cgc cta att tat aaa gtt tcc aac cga ttt      240
      Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Phe
      65          70                   75                  80

      tct ggt gtc cca gac aga ttc agc ggc agt ggg tca ggc act gat ttc      288
      Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Thr Asp Phe
      85          90                   95

      aca ctg aaa atc agc agg gtg gag gct gag gat gtt gga gtt tat tac      336
      Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
      100         105                  110

      tgc tct caa agt aca cat gtt ccg tac acg ttt ggc cag ggg acc aag      384
      Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
      115         120                  125

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ctg gag atc aaa cgtgagtgga tccgcg 412
 Leu Glu Ile Lys
 130

<210> 50
 <211> 40
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 50 40
 cagaaggccag gccagtcctcc aagactcctg atctacaaaag

<210> 51
 <211> 40
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 51 40
 ggagactggc ctggcttctg cagataccaa tgtaaatagg

<210> 52
 <211> 412
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic plasmid

<220>
 <221> CDS
 <222> (1)..(396)

<400> 52
 atg agg ctc cct gct cag ctc ctg ggg ctg cta atg ctc tgg gtc cca 48
 Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
 1 5 10 15

ggc tcc agt ggg gat gtt gtg atg act cag tct cca ctc tcc ctg ccc 96
 Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
 20 25 30

gtc acc ctt gga cag ccg gcc tcc atc tcc tgc aga tca agt cag agc
 Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45

ctt gtg cac agt aat gga aag acc tat tta cat tgg tat ctg cag aag	192
Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Tyr Leu Gln Lys	
50 55 60	
cca ggc cag tct cca aga ctc ctg atc tac aaa gtt tcc aac cga ttt	240
Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe	
65 70 75 80	
tct ggt gtc cca gac aga ttc agc ggc agt ggg tca ggc act gat ttc	288
Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe	
85 90 95	
aca ctg aaa atc agc agg gtc gag gct gag gat gtt gga gtt tat tac	336
Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr	
100 105 110	
tgc tct caa agt aca cat gtt ccg tac acg ttt ggc cag ggg acc aag	384
Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys	
115 120 125	
ctg gag atc aaa cgtgagtgga tccgcg	412
Leu Glu Ile Lys	
130	

<210> 53
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 53
cagtctccac tctccctgcc cgtcacccct ggagagccgg cctccatctc ctgc 54

<210> 54
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 54
gggtggaggc tgatgatgtt ggaatttatt actgctctc 39

<210> 55
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 55
cagggagagt ggagactgag tcatacacaat atccccactg gagcctgg 48

<210> 56
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 56
ccaacatcat cagcctccac cc 22

<210> 57
<211> 412
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
plasmid

<220>
<221> CDS
<222> (1)...(396)

<400> 57
atg agg ctc cct gct cag ctc ctg ggg ctg cta atg ctc tgg gtc cca 48
Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
1 5 10 15

ggc tcc agt ggg gat att gtg atg act cag tct cca ctc tcc ctg ccc 96
Gly Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Leu Ser Leu Pro
20 25 30

gtc acc cct gga gag ccg gcc tcc atc tcc tgc aga tca agt cag agc 144
Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
35 40 45

ctt gtg cac agt aat gga aag acc tat tta cat tgg tat ctg cag aag 192
Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Tyr Leu Gln Lys
50 55 60

cca ggc cag tct cca aga ctc ctg atc tac aaa gtt tcc aac cga ttt 240
Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe
65 70 75 80

tct ggt gtc cca gac aga ttc agc ggc agt ggg tca ggc act gat ttc 288
Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
85 90 95

aca ctg aaa atc agc agg gtg gag gct gat gat gtt gga att tat tac 336
 Thr Leu Lys Ile Ser Arg Val Glu Ala Asp Asp Val Gly Ile Tyr Tyr
 100 105 110

tgc tct caa agt aca cat gtt ccg tac acg ttt ggc cag ggg acc aag 384
 Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
 115 120 125

ctg gag atc aaa cgtgagtgga tcccgcg 412
 Leu Glu Ile Lys
 130

<210> 58
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 58
ccttaccaa ccatgttatg cactggctgc gacaggcc 38

<210> 59
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 59
ataatgagaa gttcaagggc agagtcacga tgacctca 38

<210> 60
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 60
tgctagaggg ggttactatt cttacgacga ctggggcc 38

<210> 61
<211> 20
<212> DNA
<213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 61
ataacatggt tggtaaggt                                20

<210> 62
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 62
ccttgaaactt ctcattatac                                20

<210> 63
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 63
atagtaaaccc cctcttagca                                19

<210> 64
<211> 424
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      plasmid

<220>
<221> CDS
<222> (1)..(408)

<400> 64
atg gaa tgg agc tgg ata ttt ctc ttc ctc ctg tca gga act gca ggt    48
Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
   1           5           10          15
      20          25          30

gtc cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag    96
Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
   20          25          30

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cct	ggg	gcc	tca	gtg	cag	gtt	tcc	tgt	aag	gca	tct	gga	tac	acc	ttc	144
Pro	Gly	Ala	Ser	Val	Gln	Val	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Thr	Phe	
35							40						45			
acc	aac	cat	gtt	atg	cac	tgg	ctg	cga	cag	gcc	cct	gga	caa	ggg	ctt	192
Thr	Asn	His	Val	Met	His	Trp	Leu	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	
50							55						60			
gag	tgg	atg	gga	tat	att	tat	cct	tac	aat	gat	ggt	act	aag	tat	aat	240
Glu	Trp	Met	Gly	Tyr	Ile	Tyr	Pro	Tyr	Asn	Asp	Gly	Thr	Lys	Tyr	Asn	
65							70					75		80		
gag	aag	ttc	aag	ggc	aga	gtc	acg	atg	acc	tca	gac	acg	tcc	atc	agc	288
Glu	Lys	Phe	Lys	Gly	Arg	Val	Thr	Met	Thr	Ser	Asp	Thr	Ser	Ile	Ser	
							85					90		95		
aca	gcc	tac	atg	gag	tgg	agc	agt	ctc	aga	tct	gac	gac	acg	gcc	gtc	336
Thr	Ala	Tyr	Met	Glu	Leu	Ser	Ser	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	
							100					105		110		
tat	tat	tgt	gct	aga	ggg	ggt	tac	tat	tct	tac	gac	gac	tgg	ggc	caa	384
Tyr	Tyr	Cys	Ala	Arg	Gly	Gly	Tyr	Tyr	Ser	Tyr	Asp	Asp	Trp	Gly	Gln	
							115					120		125		
gca	acc	ctg	gtc	acc	gtc	tcc	tca	ggtgagtgg	aa	tccgcg						424
Ala	Thr	Leu	Val	Thr	Val	Ser	Ser									
							130					135				

<210> 65

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 65

acagtaaggg aaacacatat ttacagtgg atctgcaga

39

<210> 66

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 66

ataggtgttt cccttactgt gcagaaggct ctgacttga

39

<210> 67
 <211> 412
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<220>
 <221> CDS
 <222> (1)..(396)

<400> 67

atg agg ctc cct gct cag ctc ctg ggg ctg cta atg ctc tgg gtc cca	48		
Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro			
1	5	10	15

ggc tcc agt ggg gat att gtg atg act cag tct cca ctc tcc ctg ccc	96	
Gly Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Leu Ser Leu Pro		
20	25	30

gtc acc cct gga gag ccg gcc tcc atc tcc tgc aga tca agt cag agc	144	
Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser		
35	40	45

ctt ctg cac agt aag gga aac acc tat tta cag tgg tat ctg cag aag	192	
Leu Leu His Ser Lys Gly Asn Thr Tyr Leu Gln Trp Tyr Leu Gln Lys		
50	55	60

cca ggc cag tct cca aga ctc ctg atc tac aaa gtt tcc aac cga ttt	240		
Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe			
65	70	75	80

tct ggt gtc cca gac aga ttc agc ggc agt ggg tca ggc act gat ttc	288	
Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Thr Asp Phe		
85	90	95

aca ctg aaa atc agc agg gtg gag gct gat gat gtt gga att tat tac	336	
Thr Leu Lys Ile Ser Arg Val Glu Ala Asp Asp Val Gly Ile Tyr Tyr		
100	105	110

tgc tct caa agt aca cat gtt ccg tac acg ttt ggc cag ggg acc aag	384	
Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys		
115	120	125

ctg gag atc aaa cgtgagtgg a tccgcg	412
Leu Glu Ile Lys	
130	

<210> 68
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 68
aggtgtcgac tcccgaggtgc agctg

25

<210> 69
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 69
ccaccactcg agactgtgac cagggtttgct tggcc

35

<210> 70
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 70
cagtctcgag tggtggcgga ggttccgata ttgtgatgac tcag

44

<210> 71
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 71
aaaaggaaaaa gcggccgctc attatttgat ctccagcttg gtcccc

46

<210> 72
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

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<220>
<221> CDS
<222> (1)...(15)

<400> 72
gg t ggc gga ggt tcc          15
Gly Gly Gly Gly Ser
      5

<210> 73
<211> 768
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      plasmid

<220>
<221> CDS
<222> (1)...(759)

<400> 73
atg gga tgg agc tgt atc atc ctc ttc ttg gta gca aca gct aca ggt    48
Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
      1           5           10          15

gtc gac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag    96
Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
      20          25          30

cct ggg gcc tca gtg cag gtt tcc tgt aag gca tct gga tac acc ttc    144
Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
      35          40          45

acc aac cat gtt att cac tgg ctg cga cag gcc cct gga caa ggg ctt    192
Thr Asn His Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
      50          55          60

gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat    240
Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
      65          70          75          80

gag aag ttc aag gac aga gtc acg atg acc tca gac acg tcc atc agc    288
Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
      85          90          95

aca gcc tac atg gag ttg agc agt ctc aga tct gac gac acg gcc gtc    336
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
      100         105         110

tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa    384
Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
      115         120         125

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gca acc ctg gtc aca gtc tcg agt ggt ggc gga ggt tcc gat att gtg	432
Ala Thr Leu Val Thr Val Ser Ser Gly Gly Gly Ser Asp Ile Val	
130 135 140	
atg act cag tct cca ctc tcc ctg ccc gtc acc cct gga gag ccg gcc	480
Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala	
145 150 155 160	
tcc atc tcc tgc aga tca agt cag agc ctt gtg cac agt aat gga aag	528
Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser Asn Gly Lys	
165 170 175	
acc tat tta cat tgg tat ctg cag aag cca ggc cag tct cca aga ctc	576
Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu	
180 185 190	
ctg atc tac aaa gtt tcc aac cga ttt tct ggt gtc cca gac aga ttc	624
Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe	
195 200 205	
agc ggc agt ggg tca ggc act gat ttc aca ctg aaa atc agc agg gtg	672
Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val	
210 215 220	
gag gct gat gat gtt gga att tat tac tgc tctcaa agt aca cat gtt	720
Glu Ala Asp Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val	
225 230 235 240	
ccg tac acg ttt ggc cag ggg acc aag ctg gag atc aaa taatgagcg	768
Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys	
245 250	

<210> 74
<211> 768
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
plasmid

<220>
<221> CDS
<222> (1)..(759)

<400> 74
atg gga tgg agc tgt atc atc ctc ttc ttg gta gca aca gct aca ggt 48
Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
1 5 10 15
gtc gac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
20 25 30

cct	ggg	gcc	tca	gtg	cag	gtt	tcc	tgt	aag	gca	tct	gga	tac	acc	ttc		144
Pro	Gly	Ala	Ser	Val	Gln	Val	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Thr	Phe		
35							40							45			
acc	aac	cat	gtt	atg	cac	tgg	ctg	cga	cag	gcc	cct	gga	caa	ggg	ctt		192
Thr	Asn	His	Val	Met	His	Trp	Leu	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu		
50							55							60			
gag	tgg	atg	gga	tat	att	tat	cct	tac	aat	gat	ggt	act	aag	tat	aat		240
Glu	Trp	Met	Gly	Tyr	Ile	Tyr	Pro	Tyr	Asn	Asp	Gly	Thr	Lys	Tyr	Asn		
65							70							75		80	
gag	aag	ttc	aag	ggc	aga	gtc	acg	atg	acc	tca	gac	acg	tcc	atc	agc		288
Glu	Lys	Phe	Lys	Gly	Arg	Val	Thr	Met	Thr	Ser	Asp	Thr	Ser	Ile	Ser		
							85							90		95	
aca	gcc	tac	atg	gag	ttg	agc	agt	ctc	aga	tct	gac	gac	acg	gcc	gtc		336
Thr	Ala	Tyr	Met	Glu	Leu	Ser	Ser	Leu	Arg	Ser	Asp	Asp	Asp	Thr	Ala	Val	
							100							105		110	
tat	tat	tgt	gct	aga	ggg	ggt	tac	tat	tct	tac	gac	gac	tgg	ggc	caa		384
Tyr	Tyr	Cys	Ala	Arg	Gly	Gly	Tyr	Tyr	Ser	Tyr	Asp	Asp	Trp	Gly	Gln		
							115							120		125	
gca	acc	ctg	gtc	aca	gtc	tcg	agt	ggt	ggc	gga	ggt	tcc	gat	att	gtg		432
Ala	Thr	Leu	Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly	Ser	Asp	Ile	Val		
							130							135		140	
atg	act	cag	tct	cca	ctc	tcc	ctg	ccc	gtc	acc	cct	gga	gag	ccg	gcc		480
Met	Thr	Gln	Ser	Pro	Leu	Ser	Leu	Pro	Val	Thr	Pro	Gly	Glu	Pro	Ala		
							145							150		160	
tcc	atc	tcc	tgc	aga	tca	agt	cag	agc	ctt	ctg	cac	agt	aag	gga	aac		528
Ser	Ile	Ser	Cys	Arg	Ser	Ser	Gln	Ser	Leu	Leu	His	Ser	Lys	Gly	Asn		
							165							170		175	
acc	tat	tta	cag	tgg	tat	ctg	cag	aag	cca	ggc	cag	tct	cca	aga	ctc		576
Thr	Tyr	Leu	Gln	Trp	Tyr	Leu	Gln	Lys	Pro	Gly	Gln	Ser	Pro	Arg	Leu		
							180							185		190	
ctg	atc	tac	aaa	gtt	tcc	aac	cga	ttt	tct	ggt	gtc	cca	gac	aga	ttc		624
Leu	Ile	Tyr	Lys	Val	Ser	Asn	Arg	Phe	Ser	Gly	Val	Pro	Asp	Arg	Phe		
							195							200		205	
agc	ggc	agt	ggg	tca	ggc	act	gat	ttc	aca	ctg	aaa	atc	agc	agg	gtg		672
Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys	Ile	Ser	Arg	Val		
							210							215		220	
gag	gct	gat	gat	gtt	gga	att	tat	tac	tgc	tct	caa	agt	aca	cat	gtt		720
Glu	Ala	Asp	Asp	Val	Gly	Ile	Tyr	Tyr	Cys	Ser	Gln	Ser	Thr	His	Val		
							225							230		240	
ccg	tac	acg	ttt	ggc	cag	ggg	acc	aag	ctg	gag	atc	aaa	taatgagcg			768	
Pro	Tyr	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Leu	Glu	Ile	Lys					
							245							250			

<210> 75
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 75
cgccggatccg gtgggtggcgg atcgccaggta cagctggtgc agtc

44

<210> 76
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 76
cgccggatcca ccaccacccg aaccaccacc acctttgatc tccagcttgg tccc

54

<210> 77
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<220>
<221> CDS
<222> (1)..(45)

<400> 77
ggt ggt ggt ggt tcg ggt ggt gga tcc ggt ggt ggc gga tcg
Gly Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser
1 5 10 15

45

<210> 78
<211> 1515
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
plasmid

<220>
<221> CDS
<222> (1)..(1506)

<400> 78
atg gga tgg agc tgt atc atc ctc ttc ttg gta gca aca gct aca ggt 48
Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
1 5 10 15

gtc gac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
20 25 30

cct ggg gcc tca gtg cag gtt tcc tgt aag gca tct gga tac acc ttc 144
Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
35 40 45

acc aac cat gtt att cac tgg ctg cga cag gcc cct gga caa ggg ctt 192
Thr Asn His Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
50 55 60

gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat 240
Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
65 70 75 80

gag aag ttc aag gac aga gtc acg atg acc tca gac acg tcc atc agc 288
Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
85 90 95

aca gcc tac atg gag ttg agc agt ctc aga tct gac gac acg gcc gtc 336
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
100 105 110

tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa 384
Tyr Tyr Cys Ala Arg Gly Gly Tyr Thr Tyr Asp Asp Trp Gly Gln
115 120 125

gca acc ctg gtc aca gtc tcg agt ggt ggc gga ggt tcc gat att gtg 432
Ala Thr Leu Val Thr Val Ser Ser Gly Gly Gly Ser Asp Ile Val
130 135 140

atg act cag tct cca ctc tcc ctg ccc gtc acc cct gga gag ccg gcc 480
Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala
145 150 155 160

tcc atc tcc tgc aga tca agt cag agc ctt gtg cac agt aat gga aag 528
Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser Asn Gly Lys
165 170 175

acc tat tta cat tgg tat ctg cag aag cca ggc cag tct cca aga ctc 576
Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu
180 185 190

ctg atc tac aaa gtt tcc aac cga ttt tct ggt gtc cca gac aga ttc 624
Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe
195 200 205

agc ggc agt ggg tca ggc act gat ttc aca ctg aaa atc agc agg gtg 672
Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val
210 215 220

gag gct gat gat gtt gga att tat tac tgc tct caa agt aca cat gtt		720
Glu Ala Asp Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val		
225	230	235
240		
ccg tac acg ttt ggc cag ggg acc aag ctg gag atc aaa ggt ggt ggt		768
Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Gly Gly Gly		
245	250	255
ggt tcg ggt ggt ggt gga tcc ggt ggt ggc gga tcg cag gtg cag ctg		816
Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gln Val Gln Leu		
260	265	270
gtg cag tct ggg gct gag gtg aag aag cct ggg gcc tca gtg cag gtt		864
Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala Ser Val Gln Val		
275	280	285
tcc tgt aag gca tct gga tac acc ttc acc aac cat gtt att cac tgg		912
Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn His Val Ile His Trp		
290	295	300
ctg cga cag gcc cct gga caa ggg ctt gag tgg atg gga tat att tat		960
Leu Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Tyr Ile Tyr		
305	310	315
320		
cct tac aat gat ggt act aag tat aat gag aag ttc aag gac aga gtc		1008
Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe Lys Asp Arg Val		
325	330	335
acg atg acc tca gac acg tcc atc agc aca gcc tac atg gag ttg agc		1056
Thr Met Thr Ser Asp Thr Ser Ile Ser Thr Ala Tyr Met Glu Leu Ser		
340	345	350
agt ctc aga tct gac gac acg gcc gtc tat tat tgt gct aga ggg ggt		1104
Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Gly		
355	360	365
tac tat act tac gac gac tgg ggc caa gca acc ctg gtc aca gtc tcg		1152
Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln Ala Thr Leu Val Thr Val Ser		
370	375	380
agt ggt ggc gga ggt tcc gat att gtg atg act cag tct cca ctc tcc		1200
Ser Gly Gly Gly Ser Asp Ile Val Met Thr Gln Ser Pro Leu Ser		
385	390	395
400		
ctg ccc gtc acc cct gga gag ccg gcc tcc atc tcc tgc aga tca agt		1248
Leu Pro Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser		
405	410	415
cag agc ctt gtg cac agt aat gga aag acc tat tta cat tgg tat ctg		1296
Gln Ser Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Tyr Leu		
420	425	430
435		
cag aag cca ggc cag tct cca aga ctc ctg atc tac aaa gtt tcc aac		1344
Gln Lys Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn		
440	445	

cga ttt tct ggt gtc cca gac aga ttc acg ggc agt ggg tca ggc act	1392
Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr	
450	455
460	
gat ttc aca ctg aaa atc acg agg gtg gag gct gat gat gtt gga att	1440
Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Asp Asp Val Gly Ile	
465	470
475	480
tat tac tgc tctcaa agt aca cat gtt ccg tac acg ttt ggc cag ggg	1488
Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly	
485	490
495	
acc aag ctg gag atc aaa taatgagcg	1515
Thr Lys Leu Glu Ile Lys	
500	

<210> 79	
<211> 1515	
<212> DNA	
<213> Artificial Sequence	
 <220>	
<223> Description of Artificial Sequence: Synthetic	
plasmid	
 <220>	
<221> CDS	
<222> (1)..(1506)	
 <400> 79	
atg gga tgg agc tgt atc atc ctc ttc ttg gta gca aca gct aca ggt	48
Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly	
1	5
10	
15	
gtc gac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag	96
Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys	
20	25
25	30
cct ggg gcc tca gtg cag gtt tcc tgt aag gca tct gga tac acc ttc	144
Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe	
35	40
40	45
acc aac cat gtt atg cac tgg ctg cga cag gcc cct gga caa ggg ctt	192
Thr Asn His Val Met His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu	
50	55
55	60
gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat	240
Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn	
65	70
75	80
gag aag ttc aag ggc aga gtc acg atg acc tca gac acg tcc atc acg	288
Glu Lys Phe Lys Gly Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser	
85	90
90	95

aca gcc tac atg gag ttg agc agt ctc aga tct gac gac acg gcc gtc		336	
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val			
100	105	110	
tat tat tgt gct aga ggg ggt tac tat tct tac gac gac tgg ggc caa		384	
Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Ser Tyr Asp Asp Trp Gly Gln			
115	120	125	
gca acc ctg gtc aca gtc tcg agt ggt ggc gga ggt tcc gat att gtg		432	
Ala Thr Leu Val Thr Val Ser Ser Gly Gly Gly Ser Asp Ile Val			
130	135	140	
atg act cag tct cca ctc tcc ctg ccc gtc acc cct gga gag ccg gcc		480	
Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala			
145	150	155	160
tcc atc tcc tgc aga tca agt cag agc ctt ctg cac agt aag gga aac		528	
Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu His Ser Lys Gly Asn			
165	170	175	
acc tat tta cag tgg tat ctg cag aag cca ggc cag tct cca aga ctc		576	
Thr Tyr Leu Gln Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu			
180	185	190	
ctg atc tac aaa gtt tcc aac cga ttt tct ggt gtc cca gac aga ttc		624	
Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe			
195	200	205	
agc ggc agt ggg tca ggc act gat ttc aca ctg aaa atc agc agg gtg		672	
Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val			
210	215	220	
gag gct gat gat gtt gga att tat tac tgc tct caa agt aca cat gtt		720	
Glu Ala Asp Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val			
225	230	235	240
ccg tac acg ttt ggc cag ggg acc aag ctg gag atc aaa ggt ggt ggt		768	
Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Gly Gly			
245	250	255	
ggt tcg ggt ggt gga tcc ggt ggt ggc gga tcg cag gtg cag ctg		816	
Gly Ser Gly Gly Ser Gly Gly Gly Ser Gln Val Gln Leu			
260	265	270	
gtg cag tct ggg gct gag gtg aag aag cct ggg gcc tca gtg cag gtt		864	
Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala Ser Val Gln Val			
275	280	285	
tcc tgt aag gca tct gga tac acc ttc acc aac cat gtt atg cac tgg		912	
Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn His Val Met His Trp			
290	295	300	
ctg cga cag gcc cct gga caa ggg ctt gag tgg atg gga tat att tat		960	
Leu Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Tyr Ile Tyr			
305	310	315	320

cct tac aat gat ggt act aag tat aat gag aag ttc aag ggc aga gtc		1008	
Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe Lys Gly Arg Val			
325	330	335	
acg atg acc tca gac acg tcc atc agc aca gcc tac atg gag ttg agc		1056	
Thr Met Thr Ser Asp Thr Ser Ile Ser Thr Ala Tyr Met Glu Leu Ser			
340	345	350	
agt ctc aga tct gac gac acg gcc gtc tat tat tgt gct aga ggg ggt		1104	
Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Gly			
355	360	365	
tac tat tct tac gac gac tgg ggc caa gca acc ctg gtc aca gtc tcg		1152	
Tyr Tyr Ser Tyr Asp Asp Trp Gly Gln Ala Thr Leu Val Thr Val Ser			
370	375	380	
agt ggt ggc gga ggt tcc gat att gtg atg act cag tct cca ctc tcc		1200	
Ser Gly Gly Gly Ser Asp Ile Val Met Thr Gln Ser Pro Leu Ser			
385	390	395	400
ctg ccc gtc acc cct gga gag ccg gcc tcc atc tcc tgc aga tca agt		1248	
Leu Pro Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser			
405	410	415	
cag agc ctt ctg cac agt aag gga aac acc tat tta cag tgg tat ctg		1296	
Gln Ser Leu Leu His Ser Lys Gly Asn Thr Tyr Leu Gln Trp Tyr Leu			
420	425	430	
cag aag cca ggc cag tct cca aga ctc ctg atc tac aaa gtt tcc aac		1344	
Gln Lys Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn			
435	440	445	
cga ttt tct ggt gtc cca gac aga ttc agc ggc agt ggg tca ggc act		1392	
Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr			
450	455	460	
gat ttc aca ctg aaa atc agc agg gtg gag gct gat gat gtt gga att		1440	
Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Asp Asp Val Gly Ile			
465	470	475	480
tat tac tgc tctcaa agt aca cat gtt ccg tac acg ttt ggc cag ggg		1488	
Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly			
485	490	495	
acc aag ctg gag atc aaa taatgagcg		1515	
Thr Lys Leu Glu Ile Lys			
500			

<210> 80

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 80 ctcgaggaat tcccaccatg ggatggagct gtatcatcc	39
<210> 81 <211> 27 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic oligonucleotide	
<400> 81 gggggcctgt cgccaggat gaataac	27
<210> 82 <211> 45 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic oligonucleotide	
<400> 82 ggcaggatcg tgtatacggc cgtgtcgta gatctgagac tgctc	45
<210> 83 <211> 35 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic oligonucleotide	
<400> 83 ggcaatgcc ttgagtggat gggatataatt tatcc	35
<210> 84 <211> 54 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic oligonucleotide	
<400> 84 tcattatgg atctcaagct tggtcccgca gccaaacgtg tacggaacat gtgt	54

<210> 85
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 85
tactattgtg ctagaggggg ttactatact tacgacgact ggggctgcgc aaccctggtc 60
acagtctc 68

<210> 86
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 86
gggcttctgc agataccaaat gtaaaataggt ctttc 35

<210> 87
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 87
gggcagtgcc caagactcct gatctacaaa gtttcc 36

<210> 88
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 88
tcattatttg atctcaagct tggtccccctg gccaaac 37

<210> 89
<211> 708
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide sequence

<400> 89
caggtgcagc tggtgca gtc tggggctgag gtgaagaagc ctggggc ctc agtgcagg tt 60
tcctgt aagg catctggata caccc tcacc aaccatgtta ttca ctggct gcgacagg cc 120
cccgggcaat gccttggat gatggat atttatc cttt acaatgatgg tactaagtat 180
aatgagaatg tcaaggacag agtca cgtatg acctc agaca cgtccatc ag cacagcctac 240
atggagttga gca gtc tca gatc acgtac gac acggccgtt attattgtgc tagaggggt 300
tactatactt acgac gactg gggccaa gca accctggtca cagtctcgag tgg tggc gga 360
gg tcccgata ttgtat gac tc agtctcca ctctccctgc ccgtc acccc tggagagcc 420
gcctccatct cctgc agatc aactc agtca gac gtc cttgtc aca gtaatggaaa gacctattt 480
cattgtatc tgca gaa gca aggccatctt ccaagactcc tgatctacaa agtttccaac 540
cgat ttc tctg gtgtcccaga cagatc agc ggc agtgggtt caggcactgaa tttcacactg 600
aaaatc agca ggg tggaggc tgatgatgtt gaaatttatt actgctctca aagtacacat 660
gttccgtaca ctttggctg cgggaccaag cttgagatca aataatga 708

<210> 90
<211> 234
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
protein

<400> 90
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15
Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn His
20 25 30
Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Cys Leu Glu Trp Met
35 40 45
Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe
50 55 60
Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80
Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Arg Gly Gly Tyr Tyr Thr Asp Asp Trp Gly Gln Ala Thr Leu
100 105 110
Val Thr Val Ser Ser Gly Gly Ser Asp Ile Val Met Thr Gln
115 120 125
Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala Ser Ile Ser
130 135 140
Cys Arg Ser Ser Gln Ser Leu Val His Ser Asn Gly Lys Thr Tyr Leu
145 150 155 160

His Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr
 165 170 175

Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser
 180 185 190

Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Asp
 195 200 205

Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Tyr Thr
 210 215 220

Phe Gly Cys Gly Thr Lys Leu Glu Ile Lys
 225 230

<210> 91

<211> 708

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 polynucleotide sequence

<400> 91

caggtgcagtc tgggtgcagtc tggtgcagtc gtgaagaagc ctggggcctc agtgcagggtt 60
 tcctgttaagg catctggata cacccttcacc aaccatgtta ttcaactggct gcgacaggcc 120
 cctgggcaag ggcttgagtg gatggatatttatttcataatgtttt tactaaagtat 180
 aatgagaagt tcaaggacag agtcacgatg acctcagaca cgtccatcag cacagcctac 240
 atggagttga gcagtcgtatc atctgacgac acggccgtat actattgtgc tagagggggt 300
 tactatactt acgacgactg gggctgcgc accctggtca cagtcgtcgag tggtggcgaa 360
 ggttccgata ttgtgatgac tcagtcgttca ctctccctgc ccgttcacccc tggagagccg 420
 gcctccatct cctgcagatc aagtcaagac cttgtgcaca gtaatggaaa gacctattta 480
 cattggatc tgcagaagcc cgggcagtc ccaagactcc tgatctacaa agtttccaac 540
 cgattttctg gtgtcccaga cagattcagc ggcagtgggt cagggactgaa ttccacactg 600
 aaaatcagca ggggtggaggc tgatgtatgtt ggaattttt actgtctca aagtacacat 660
 gttccgtaca cgtttggcca ggggaccaag cttgagatca aataatga 708

<210> 92

<211> 234

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 protein

<400> 92

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15

Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn His
 20 25 30

Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

 Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe
 50 55 60

 Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser Thr Ala Tyr
 65 70 75 80

 Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

 Ala Arg Gly Gly Tyr Tyr Thr Asp Asp Trp Gly Cys Ala Thr Leu
 100 105 110

 Val Thr Val Ser Ser Gly Gly Ser Asp Ile Val Met Thr Gln
 115 120 125

 Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala Ser Ile Ser
 130 135 140

 Cys Arg Ser Ser Gln Ser Leu Val His Ser Asn Gly Lys Thr Tyr Leu
 145 150 155 160

 His Trp Tyr Leu Gln Lys Pro Gly Gln Cys Pro Arg Leu Leu Ile Tyr
 165 170 175

 Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser
 180 185 190

 Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Asp
 195 200 205

 Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Tyr Thr
 210 215 220

 Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 225 230

<210> 93
 <211> 136
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 93
 Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15

 Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60
 Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80
 Glu Lys Phe Lys Asp Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser
 85 90 95
 Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125
 Gly Thr Leu Val Thr Val Ser Ser
 130 135

<210> 94

<211> 136

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 94

Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Ser Gly Thr Ala Gly
 1 5 10 15

Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Thr Ser
 85 90 95

Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
 100 105 110

Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

Gly Thr Leu Val Thr Val Ser Ser
 130 135

<210> 95
 <211> 136
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 95
 Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15

Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Thr Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Thr Ser
 85 90 95

Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
 100 105 110

Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

Gly Thr Leu Val Thr Val Ser Ser
 130 135

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<210> 96
 <211> 136
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 96
 Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15

Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu			
50	55	60	
Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn			
65	70	75	80
Glu Lys Phe Lys Asp Lys Val Thr Met Thr Ser Asp Thr Ser Thr Ser			
85	90	95	
Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val			
100	105	110	
Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln			
115	120	125	
Gly Thr Leu Val Thr Val Ser Ser			
130	135		

<210> 97			
<211> 136			
<212> PRT			
<213> Artificial Sequence			
<220>			
<223> Description of Artificial Sequence: Synthetic			
plasmid			
<400> 97			
Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly			
1	5	10	15
Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys			
20	25	30	
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe			
35	40	45	
Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu			
50	55	60	
Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn			
65	70	75	80
Glu Lys Phe Lys Asp Arg Val Thr Leu Thr Ser Asp Thr Ser Thr Ser			
85	90	95	
Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val			
100	105	110	
Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln			
115	120	125	
Gly Thr Leu Val Thr Val Ser Ser			
130	135		

<210> 98
<211> 136
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 98
Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
1 5 10 15
Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
20 25 30
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
35 40 45
Thr Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
50 55 60
Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
65 70 75 80
Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Thr Ser
85 90 95
Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
100 105 110
Tyr Tyr Cys Ala Arg Gly Gly Tyr Thr Tyr Asp Asp Trp Gly Gln
115 120 125
Gly Thr Leu Val Thr Val Ser Ser
130 135

<210> 99
<211> 136
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 99
Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
1 5 10 15
Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
20 25 30

Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Thr Asn His Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60
 Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80
 Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
 85 90 95
 Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125
 Ala Thr Leu Val Thr Val Ser Ser
 130 135

<210> 100
 <211> 132
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

 <400> 100
 Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
 1 5 10 15
 Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
 20 25 30
 Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45
 Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Phe Gln Gln Arg
 50 55 60
 Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Phe
 65 70 75 80
 Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Thr Asp Phe
 85 90 95
 Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
 100 105 110
 Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
 115 120 125

Leu Glu Ile Lys
130

<210> 101
<211> 132
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic plasmid

<400> 101
Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
1 5 10 15

Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
20 25 30

Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
35 40 45

Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Phe Gln Gln Arg
50 55 60

Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe
65 70 75 80

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Thr Asp Phe
85 90 95

Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
100 105 110

Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
115 120 125

Leu Glu Ile Lys
130

<210> 102
<211> 132
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic plasmid

<400> 102
Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
1 5 10 15

Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
20 25 30

Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45

Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Phe Gln Gln Arg
 50 55 60

Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Phe
 65 70 75 80

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 85 90 95

Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Phe
 100 105 110

Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
 115 120 125

Leu Glu Ile Lys
 130

<210> 103

<211> 132

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 103

Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
 1 5 10 15

Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
 20 25 30

Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45

Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Tyr Gln Gln Arg
 50 55 60

Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Phe
 65 70 75 80

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 85 90 95

Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
 100 105 110

Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
 115 120 125

Leu Glu Ile Lys
130

<210> 104
<211> 132
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 104
Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
1 5 10 15

Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
20 25 30

Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
35 40 45

Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Phe Leu Gln Arg
50 55 60

Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Phe
65 70 75 80

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
85 90 95

Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
100 105 110

Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
115 120 125

Leu Glu Ile Lys
130

<210> 105
<211> 132
<212> PRT
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 105
Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
1 5 10 15

Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
20 25 30

Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45

 Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Tyr Leu Gln Lys
 50 55 60

 Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe
 65 70 75 80

 Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 85 90 95

 Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
 100 105 110

 Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
 115 120 125

 Leu Glu Ile Lys
 130

<210> 106
 <211> 132
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 106
 Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
 1 5 10 15

 Gly Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Leu Ser Leu Pro
 20 25 30

 Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45

 Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Tyr Leu Gln Lys
 50 55 60

 Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe
 65 70 75 80

 Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 85 90 95

 Thr Leu Lys Ile Ser Arg Val Glu Ala Asp Asp Val Gly Ile Tyr Tyr
 100 105 110

 Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
 115 120 125

Leu Glu Ile Lys
130

<210> 107
<211> 136
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic plasmid

<400> 107
Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
1 5 10 15

Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
20 25 30

Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
35 40 45

Thr Asn His Val Met His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
50 55 60

Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
65 70 75 80

Glu Lys Phe Lys Gly Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
85 90 95

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
100 105 110

Tyr Tyr Cys Ala Arg Gly Gly Tyr Ser Tyr Asp Asp Trp Gly Gln
115 120 125

Ala Thr Leu Val Thr Val Ser Ser
130 135

<210> 108
<211> 132
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic plasmid

<400> 108
Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
1 5 10 15

Gly Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Leu Ser Leu Pro
20 25 30

Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45

Leu Leu His Ser Lys Gly Asn Thr Tyr Leu Gln Trp Tyr Leu Gln Lys
 50 55 60

Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe
 65 70 75 80

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Thr Asp Phe
 85 90 95

Thr Leu Lys Ile Ser Arg Val Glu Ala Asp Asp Val Gly Ile Tyr Tyr
 100 105 110

Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
 115 120 125

Leu Glu Ile Lys
 130

<210> 109

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 109

Gly Gly Gly Gly Ser
 1 5

<210> 110

<211> 253

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 110

Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
 1 5 10 15

Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Thr Asn His Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
 85 90 95

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
 100 105 110

Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

Ala Thr Leu Val Thr Val Ser Ser Gly Gly Gly Ser Asp Ile Val
 130 135 140

Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala
 145 150 155 160

Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser Asn Gly Lys
 165 170 175

Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu
 180 185 190

Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe
 195 200 205

Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val
 210 215 220

Glu Ala Asp Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val
 225 230 235 240

Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 245 250

<210> 111
 <211> 253
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 111
 Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
 1 5 10 15

Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Thr Asn His Val Met His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

Glu Lys Phe Lys Gly Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
 85 90 95

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
 100 105 110

Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Ser Tyr Asp Asp Trp Gly Gln
 115 120 125

Ala Thr Leu Val Thr Val Ser Ser Gly Gly Gly Ser Asp Ile Val
 130 135 140

Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala
 145 150 155 160

Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu His Ser Lys Gly Asn
 165 170 175

Thr Tyr Leu Gln Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu
 180 185 190

Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe
 195 200 205

Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val
 210 215 220

Glu Ala Asp Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val
 225 230 235 240

Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 245 250

<210> 112

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 112

Gly Gly Gly Ser Gly Gly Ser Gly Gly Ser 1 5 10 15

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<210> 113
<211> 502
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      plasmid

<400> 113
Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
    1           5           10          15

Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
    20          25           30

Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
    35          40           45

Thr Asn His Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
    50          55           60

Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
    65          70           75           80

Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
    85          90           95

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
   100         105          110

Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
   115         120          125

Ala Thr Leu Val Thr Val Ser Ser Gly Gly Gly Ser Asp Ile Val
   130         135          140

Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala
   145         150          155          160

Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser Asn Gly Lys
   165         170          175

Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu
   180         185          190

Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe
   195         200          205

Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val
   210         215          220

Glu Ala Asp Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val
   225         230          235          240

Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Gly Gly
   245         250          255

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Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser Gln Val Gln Leu
 260 265 270
 Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala Ser Val Gln Val
 275 280 285
 Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn His Val Ile His Trp
 290 295 300
 Leu Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Tyr Ile Tyr
 305 310 315 320
 Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe Lys Asp Arg Val
 325 330 335
 Thr Met Thr Ser Asp Thr Ser Ile Ser Thr Ala Tyr Met Glu Leu Ser
 340 345 350
 Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Gly
 355 360 365
 Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln Ala Thr Leu Val Thr Val Ser
 370 375 380
 Ser Gly Gly Gly Ser Asp Ile Val Met Thr Gln Ser Pro Leu Ser
 385 390 395 400
 Leu Pro Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser
 405 410 415
 Gln Ser Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Tyr Leu
 420 425 430
 Gln Lys Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn
 435 440 445
 Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Thr
 450 455 460
 Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Asp Asp Val Gly Ile
 465 470 475 480
 Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly
 485 490 495
 Thr Lys Leu Glu Ile Lys
 500

<210> 114

<211> 502

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 114
 Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
 1 5 10 15
 Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30
 Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Thr Asn His Val Met His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60
 Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80
 Glu Lys Phe Lys Gly Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
 85 90 95
 Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Gly Tyr Ser Tyr Asp Asp Trp Gly Gln
 115 120 125
 Ala Thr Leu Val Thr Val Ser Ser Gly Gly Gly Ser Asp Ile Val
 130 135 140
 Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala
 145 150 155 160
 Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu His Ser Lys Gly Asn
 165 170 175
 Thr Tyr Leu Gln Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu
 180 185 190
 Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe
 195 200 205
 Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val
 210 215 220
 Glu Ala Asp Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val
 225 230 235 240
 Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Gly Gly
 245 250 255
 Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser Gln Val Gln Leu
 260 265 270
 Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala Ser Val Gln Val
 275 280 285
 Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn His Val Met His Trp
 290 295 300

Leu Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Tyr Ile Tyr
 305 310 315 320
 Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe Lys Gly Arg Val
 325 330 335
 Thr Met Thr Ser Asp Thr Ser Ile Ser Thr Ala Tyr Met Glu Leu Ser
 340 345 350
 Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Gly
 355 360 365
 Tyr Tyr Ser Tyr Asp Asp Trp Gly Gln Ala Thr Leu Val Thr Val Ser
 370 375 380
 Ser Gly Gly Gly Ser Asp Ile Val Met Thr Gln Ser Pro Leu Ser
 385 390 395 400
 Leu Pro Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser
 405 410 415
 Gln Ser Leu Leu His Ser Lys Gly Asn Thr Tyr Leu Gln Trp Tyr Leu
 420 425 430
 Gln Lys Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn
 435 440 445
 Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr
 450 455 460
 Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Asp Asp Val Gly Ile
 465 470 475 480
 Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly
 485 490 495
 Thr Lys Leu Glu Ile Lys
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 peptide linker

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